of initiating service. For example, a company that expects to have to pay premium costs of $400,000 per link for 100 links to initiate service in some BTA will subtract the $40,000,000 in premium payments in calculating the value of the license. Its maximum price would be correspondingly reduced. Since it is the maximum price of the bidder with the second highest value that determines the auction price, the net result would be a $40,000,000 reduction in the price for this individual license. Assuming that the microwave licensee negotiates a premium payment of $400,000 to $800,000 per link in addition to the direct relocation costs and that the premium cost for each link is shared equally among the PCS licensees whose services would interfere, and recognizing that 3,227 links interfere with the C, D, E, and F-bands nationwide, I expect that the total auction prices of the licenses in the C, D, E and F bands would be reduced by $930 million to $1.9 billion.[1]

Consumer Surplus Computations[2]

11. The largest cost of any delay in instituting PCS services would be borne by consumers in the wireless industry, for whom access to PCS services would be delayed and who would pay higher prices for cellular services due to the absence of PCS competition. Estimates of the loss of consumer surplus per month from delayed entry depend on assumptions about the nature of competition and the effectiveness of regulation in the industry, as well as on forecasts of demand. However, even the most rough-and-ready estimates show that the cost is very large. Currently, cellular service is provided by what is essentially a duopoly. If the introduction of the PCS A and B-band competitors into the wireless services market led to price reductions of just 10% with no consequent expansion in demand it would still increase consumer surplus by an amount equal to 10% of the existing industry revenues. Cellular telecommunications industry revenues for 1994

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[1]This calculation uses information supplied by Pacific Bell Mobile Services about which particular PCS bands would interfere with each particular microwave links.

[2]These calculations incorporate and extend the ones in my statement to the FCC of May, 1995.

amounted to approximately $14.2 billion,[3] leading to an estimated gain for consumers of $1.42 billion per year. Similarly, if entry of the C-band provider led to price reduction of 2%, the estimated gain for consumers would be $284 million per year.

12. The preceding estimates, however, are probably too low. Because even conservative assumptions about demand can lead to very large estimates of the loss of consumer surplus from delayed entry, I have constructed my estimates using conservative assumptions about demand. First, despite the persistent growth of demand recently experienced and forecast by almost every pundit, I assume that the scale of the wireless market is fixed at the level attained in the summer of 1994. Second, despite estimates which show that demand for wireless services has tended to be quite inelastic, I assume that wireless service demand has unitary elasticity, which is the average elasticity for all products in the economy.[4] Third, in order to focus on the beneficial effects of competition for consumers, I assume that there is an absence of regulation that either raises or depresses prices. Finally, I assume that the parties have equal costs and engage in Cournot competition, which is a moderate and widely used specification of the intensity of competition among wireless providers.

13. With these assumptions, the eventual effect on consumer surplus of increasing the number of competitors in a market from two to four -- the entry of the PCS A and B-band licensees -- would be a fifty percent (50%) increase in the volume of wireless calling, a thirty three percent (33%) reduction in the prices of wireless services, and an increase in consumer surplus of approximately $5.9 billion per year. The entry of a fifth competitor, the C-band licensee, would increase volume by an additional seven percent (7%) and lower prices by an additional six percent

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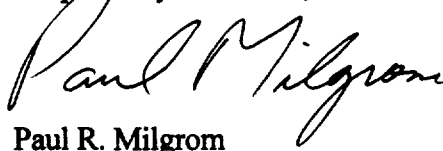[3] *The Wireless Communications Industry*, Donaldson, Lufkin & Jenrette, Winter 1994-1995.

[4] In an affidavit to the Commission dated September 14, 1994, Professor Jerry Hausman estimated the price-elasticity of demand to be -0.402 with a standard error of .155. As the customer base for wireless services expands, demand may become more elastic. Since more elastic demand leads to lower estimates of the additional consumer surplus from increased competition, I have used such an estimate here.

(6%) leading to an increase in consumer surplus of approximately of $920 million per year. Delaying the day when these new entries occur amounts to delaying the time at which consumers first begin enjoying this enormous benefit.

14. The preceding calculation has assumed that the market adjusts immediately to the entry of new competitors and that the size of the market at the time of entry is the same as its current size. More realistically, we would expect a delayed adjustment and a growing market. If, as expected, the rate of growth in the relevant future period exceeds the real rate of interest, then accounting for both of these effects would further increase the consumer surplus estimates.

15. It is most likely that, if the rules remain unchanged, both of the kinds of costs described in this memorandum will be incurred. There will certainly be a loss of auction revenue to the government amounting to hundreds of millions, or perhaps billions of dollars. In addition, there will probably be a loss of consumer surplus amounting to hundreds of millions of dollars.

Respectfully submitted,

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